

## IMPROVED HANDSFREE APPARATUS

### BACKGROUND OF THE INVENTION

#### 1. Field of the invention

5 The present invention relates to a handsfree apparatus, especially the one improving quality of communication and having an external plug-in microphone such that quality of communication is better.

#### 2. Description of the prior art

10 With flourishing development of industries of wireless communication and cell phones, the direction of pursuing convenience and comfort of products is emphasized and every electric communication product tends to have better precision and quality.

15 Except for pure conversation, cell phones keep developing toward diversification. Both real image and internet increase additional value. Therefore, cell phones in future must make users to proceed communication, watching screens and talking without nestling ears on phones at the same time. However, if sound is broadcasted via speakers, private conversation can't be kept in secret. If users use earphones having wires, those wires may become an obstracter in the narrow space. Although it is not very inconvenient, promoting driving quality and improving all disadvantages are the final object for a designer. In this reason, disadvantages described above are just parts of all, and the present headphones and earphones are really not perfect designs, no matter in the aspect of exterior or structure, and need being improved.

25 Besides, the handsfree apparatuses on sale need to be plugged into the cigarette lighter directly, and electric waves of calling party and receiving

party usually interference each other. In addition, habitually used  
handsfree apparatuses are not suitable for all manufacturers and types of cell  
phones.

The inventor of the present invention ruminated over the disadvantages  
5 resulted from the product described above and earnestly deliberated the way  
of improvement and innovation. After studying hard for a long period, the  
inventor eventually succeeded in inventing the handsfree apparatus having a  
header and housing plug-in components.

#### SUMMARY OF THE INVENTION

10 The purpose of the present invention is to provide an improved handsfree  
apparatus, whereof a header plug-in component is set on the holder according  
to the way of sound source output, such as MOTOROLA L2000, SAMSUNG 3500, 6100,  
8500 series, and PHS series in Japan, and is plugged into the phone jack of  
the cell phone at proper time to take out sound source and output via the  
15 speaker.

The second purpose of the present invention is to provide an improved  
handsfree apparatus, in which the calling and receiving unit are set separately  
such that interference from each other because of echo is avoided to make  
quality of communication better.

20 Another purpose of the present invention is to provide an improved  
handsfree apparatus, which contains an independent communication unit, an  
external microphone. The microphone is the plug-in head of the header and  
used for making sound picked up more efficiently, and joining with the housing  
plug-in component of the holder via a sliding gear such that except for using  
25 the plug-in components to adjust the usage space of the holder, the user also

can use the sliding gear to adjust the angle of the external microphone to make it pick up sound source more efficiently.

The improved handsfree apparatus achieving the purposes described above comprises a plug-in part and a body. The former is the structure of multi-bending and provide the holder with omnidirectional usage space, and the holder has a room for cell phone and is arranged in pair with different cell phone and, besides, an external microphone is set.

### BRIEF DESCRIPTION OF THE DRAWINGS

The drawings disclose an illustrative embodiment of the present invention which serves to exemplify the various advantages and objects hereof, and are as follows:

FIG.1 3D view of the present invention, an improved handsfree apparatus;

FIG.2 View of the practice of the handsfree apparatus with placing the cell phone;

FIG.3 Magnified partial diagram of the external microphone of the handsfree apparatus

FIG.4 Diagram of another practice method of the handsfree apparatus

[Diagram remarks]

1 Plug-in part

11 Body

12 Extended part

2 Holder

22 Plug-in terminal

23 Plug-in jack

24 Placing room

- 25 Connecting socket
- 251 Fixing teeth
- 252 Circular pit
- 26 Phone plug-in end
- 5 27 Fixing clip
- 3 Fixing bolt
- 31 Nut
- 4 Speaker
- 5 External microphone
- 10 51 Linking set
- 52 Tooth crown
- 53 Protruding circular points
- 6 Cell phone
- 61 Plug-in hole

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG.1, the improved handsfree apparatus from the present invention mainly comprises a plug-in part 1 and a holder 2. The plug-in part 1 comprises the body of the plug-in part 11, an extended part 12, joints 7 of different direction separately used for joining the body 11 of the plug-in part and the extended part 12 together, and the extended part 12 and the holder 2 together, and a fixing bolt 3 for piercing through the joint 7 outside of each joint 7 and locked with a nut (not shown in figures). The holder 2 joining with the plug-in part 1 comprises a speaker 4, a plug-in terminal 22, a plug-in jack 23, a placing room 24 for cell phone and a connecting socket 25. In

addition, there is an external microphone 5.

The speaker 4 is used to output sound source of the cell phone, and the internal circuit is connected with the circuit of the phone plug-in end 26 and the plug-in terminal 22 such that the function of automatically choosing the way of sound source signal input is performed.

Referring to FIG.2, which shows that the cell phone 6 (MOTOROLA L2000) is placed in the placing room, the cell phone 6 has a plug-in hole 61, which is used for plugging in the plug-in terminal 22 of the holder 2 to take out sound, at the left side of the front side. In this way, the present invention can provide the handsfree apparatus suitable for the cell phone MOTOROLA L2000 series. Before being plugged, the plug-in terminal 22 is suspended outside of the holder 2. After the cell phone 6 is placed into the placing room 24, the user just plugs the plug-in terminal 22 into the plug-in hole 61 of the fixed cell phone 6 such that sound can be broadcast via the speaker 4. The cell phone 6 can also be fixed between the holder 2 and the cell phone 6 by using the fixing clip 27.

Therefore, the position of the plug-in terminal of the present invention is able to be varied based on specifications of cell phones and different positions of the housing plug-in components while having the same feature.

Referring to FIG.3, the external microphone 5 is an independent unit, and is a header plug-in terminal component (phone jack). The microphone 5 has a linking set 51, on which tooth crowns are sculptured. A connecting socket 25 is set outside of the plug-in jack 23 of the holder 2, and fixing teeth 251 are set around the internal annular area of the connecting socket 25. In this way, after plugging, the microphone 5 can be joined with the connecting

socket 25 of the holder 2 by the tooth crowns 52. The fixing teeth 251 of the connecting socket 25 of the holder 2 are engaged with the tooth crowns 52 of the external microphone 5, and the composition has the function of fixing and roughly rubbing such that the microphone 5 is not easy to droop or direction of the microphone is not easy to be out of control due to sliding. Therefore, except for using the plug-in part to adjust the usage space of the holder, the user also can adjust the angle between the external microphone 5 and the holder 2 to make the external microphone 5 pick up sound more omnidirectionally and effectively.

Referring to FIG.4, which shows another type of external microphone 5, protruding circular points 53 are set around the external annular area of the linking set 51, and corresponding circular pits 252 are set around the internal annular side of the connecting socket 25 outside of the holder 2. Using the circular pits 25 of the connecting socket 25 of the holder 2 to engage with the protruding circular points 52 of the external microphone 5 has the function of fixing and roughly rubbing, and thus the microphone is not easy to droop or the direction of the microphone is not easy to be out of control due to sliding such that except for using the plug-in part to adjust the usage space, the user also can use the sliding gear to adjust the angle between the external microphone and the holder to make the external microphone pick up sound more effectively.

The improved handsfree apparatus of the present invention has following advantages:

1. The present invention can be designed with different dies and plug-in terminals of different direction according to different specifications and

types of cell phones.

2. Because of length and angle, the plug-in microphone picks up sound more effectively and is not easy to have echo interference.

3. By setting the plug-in components on the handsfree apparatus, the user just  
5 need to plug the plug-in component into the cell phone or place the cell phone on the holder of the handsfree apparatus before driving, and then talk easily under driving.

4. The opportunity of causing accidents resulted from talking under driving is lowered substantially.

10 Many changes and modifications in the above described embodiment of the invention can, of course, be carried out without departing from the scope thereof. Accordingly, to promote the progress in science and the useful arts, the invention is disclosed and is intended to be limited only by the scope of the appended claims.

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